



# Appendices

## Appendix A

### Test and Item Development

The questions that appear on the CAHSEE have been through an extensive development process to ensure that they are valid and fair measures of what students know and are able to do.

#### *Content Validity*

To ensure that the CAHSEE is a valid measure of the specified academic content standards, the questions are carefully designed to assess the content indicated in the test blueprints. Insofar as possible, each question requires students to demonstrate knowledge and/or skills in only one standard. Because many academic content standards cover a wide range of knowledge and skills, individual questions may assess one component of the standard. Other questions may address underlying, foundational knowledge or skills required for higher achievement in the standard.

#### *Technical Quality*

Well-written questions give students an opportunity to demonstrate what they know and are able to do; students do not have to guess what the question is asking. When questions are clearly written and easily understood, students are able to provide evidence of their learning. Questions have only one clearly correct answer. The language is simple, direct, and free of ambiguity. Questions should not test reading ability or vocabulary if that is not the purpose. CAHSEE questions are reviewed for content validity and technical quality by committees of California educators.

#### *Test Bias*

Bias in testing can take several forms, including the use of unfamiliar or insensitive language and terms, the presentation of stereotypes, and the inclusion of concepts that are offensive or negative toward any group. During the development process, CAHSEE questions are continually reviewed for potential bias to ensure that the CAHSEE meets the highest professional testing standards.

For general matters of style and grammar, CAHSEE test developers consult *The Gregg Reference Manual*, *Merriam-Webster's Collegiate Dictionary*, and *The American Heritage College Dictionary*.

The following checklists are used by CAHSEE item writers and review committees as a basis for evaluating the content validity, technical quality, and fairness of questions. Teachers may use these checklists to improve classroom assessments. For multiple-choice questions for mathematics, teachers may wish to write standards-based test questions to help students prepare for the CAHSEE. The checklist in Table 1 is provided for teachers to evaluate their own questions against the general requirements for CAHSEE multiple-choice questions.

**Table 1**  
**Development Checklist for Multiple-Choice Questions**

✓	Requirements
<b>The item as a whole—</b>	
	measures the objective (content standard).
	follows the test specifications.
	uses grade-appropriate vocabulary and sentence structures.
	reflects current teaching practices.
	is free of bias, sensitive language or topics, and stereotypes.
	has a clear purpose.
	tests worthwhile (not trivial) concepts or information.
	is grammatically correct.
	is factually accurate.
	clearly presents one central idea.
	has one clearly correct answer.
	contains simple, direct, unambiguous language.
	is within the appropriate range of difficulty.
	follows appropriate style guidelines.
	does <u>not</u> ask for the student's opinion.
	does <u>not</u> use vocabulary and idiomatic phrases that could be unfamiliar.
	does <u>not</u> rely on students possessing outside knowledge.
	is <u>not</u> tricky or cute.

**Development Checklist for Multiple-Choice Questions, continued**

✓	Requirements
<b>The stem of the item—</b>	
	gives the test taker a full sense of what the item is asking.
	is clear and concise.
	is either a question or an incomplete statement.
<b>The stimulus or passage for the item—</b>	
	provides all the information needed to answer the items.
	is correctly and clearly labeled.
	is required to answer the associated item(s).
	is likely to be interesting to students.
<b>The response options—</b>	
	are written so that no one option is significantly different from the others.
	relate to the stem in the same way.
	include plausible and reasonable misconceptions and errors.
	have a balance of A, B, C, and D responses.
	do <u>not</u> contain an option that denies the truth of any other option.
	do <u>not</u> deny the truth of the stem.
	do <u>not</u> give clues to students, such as the use of absolutes or repeating key words that appear in the stem.
	do <u>not</u> repeat words that could be placed in the stem.
	do <u>not</u> include distractors that are phrased differently but have the same meaning.

*Test Security*

One of the most significant guarantors of fairness to all students who take the CAHSEE is that passages, writing prompts, graphical materials, and questions remain secure at all times. Individuals who circumvent or attempt to circumvent procedures to maintain test security diminish the legitimate and honest efforts of all other students and teachers to participate in the state's assessment system. The California Department of Education (CDE) has the authority, according to the California *Education Code* Section 60851 (b) and (c) and the copyright statutes of the United States, to act against any individual or group of individuals who knowingly attempt to copy, duplicate, or transmit in any way, the contents of secure material from test booklets, answer documents, in whole or in part, to any other individual or group of individuals. The California Department of Education may employ procedures to maintain the test security of the CAHSEE, including but not limited to monitoring of test administration, document handling, and post-test analytic techniques such as mark discrimination analysis.

## Appendix B

### Resources

#### *Student Study Guides*

CDE has released a Study Guide for the mathematics portion of the CAHSEE. The Study Guide features answers to frequently asked questions, test-taking tips, and a practice test. The Study Guide includes released test questions with the solutions explained. While the Study Guide was written for students to use independently, teachers may incorporate it into their classroom instruction to prepare students for the CAHSEE. Additionally, the Study Guide is available on the CDE Web site.

#### *Resource Documents*

The information in this Teacher Guide is based on the California academic content standards and the California frameworks in mathematics. These documents may be ordered from the California Department of Education, or they may be downloaded from the CDE Web site, as shown below:

*The Mathematics Content Standards for California Public Schools, Kindergarten Through Grade Twelve* (1997) is available from the California Department of Education, CDE Press, Sales Unit, 1430 N Street, Suite 3207, Sacramento, CA 95814; 1-800-995-4099, ext. 1. It is also available at <http://www.cde.ca.gov/> on the Internet.

*The Mathematics Framework for California Public Schools, Kindergarten Through Grade Twelve* (1999), is available from the California Department of Education, CDE Press, Sales Unit, 1430 N Street, Suite 3207, Sacramento, CA 95814; 1-800-995-4099, ext. 1. It is also available at <http://www.cde.ca.gov/> on the Internet.

#### *Other Resources*

The student Study Guides for the CAHSEE are available at <http://www.cde.ca.gov/ta/tg/hs/resources.asp>

Released Test Questions from the CAHSEE are available at <http://www.cde.ca.gov/ta/tg/hs/resources.asp>

Answers to Frequently Asked Questions (FAQs) are available at <http://www.cde.ca.gov/ta/tg/hs/faq.asp>

Blueprints for the CAHSEE are available at <http://www.cde.ca.gov/ta/tg/hs/resources.asp>

CAHSEE background information is available at <http://www.cde.ca.gov/ta/tg/hs/>

## Appendix C

### Glossary of Terms Used in This Guide

**Answer Choices** — The correct answer and the distractors in a multiple-choice test question.

**Blueprint** — The plan for assessment that specifies the number of questions on each test form according to strand and academic content standard.

**Clueing** — An instance in which one test question provides information that could be used to select the correct answer to another question, or an instance in which the stem in a multiple-choice question clues the correct answer.

**Distractors** — Incorrect answers to a multiple-choice stem.

**Field-Test Questions** — Test questions that are administered to students to gain information about the quality of the question. Student performance on these questions does not affect student scores.

**Foundational Knowledge/Foundational Skill** — Knowledge or skill that a student would be taught and be expected to know prior to taking courses covering the academic content standards tested in the CAHSEE.

**Item** — A test question written in one of several possible item formats.

**Item Format** — The basic design of a test question (e.g., multiple-choice, constructed response).

**Key** — The correct answer to a multiple-choice question.

**Multiple-Choice Question** — A stem plus a number of response options or answer choices (four for CAHSEE).

**Response Options** — The choices in a multiple-choice question, consisting of one key (correct answer) and a number of distractors (three for CAHSEE).

**Scoring Guide** — The rubric or protocol to follow when assigning a point value to responses to a writing task.

**Specifications** — The document that includes a description of how each standard is assessed on the CAHSEE.

**Standard** — A statement of what students should know and be able to do.

**Stem** — The initial part of a multiple-choice test question in which the task or premise is given. The stem may be a question, an incomplete statement, or a set of directions.

**Stimulus** — A picture, graph, map, chart, quotation, or other text that students are asked to interpret when answering a test item.

**Strand** — A category of standards that relate to each other for purposes of reporting performance on the CAHSEE.

# **Mathematics Teacher Guide**

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